

MELDAS Series

**MR-J2-_A-S01, AC Servo Amplifier for Turret Indexing
(BCN-B32105-0088)**

USA-E99361 -005*

mitsubishi
Electric Automation

USA

MITSUBISHI

MITSUBISHI General purpose **AC Servo**

MELSERVO - J2

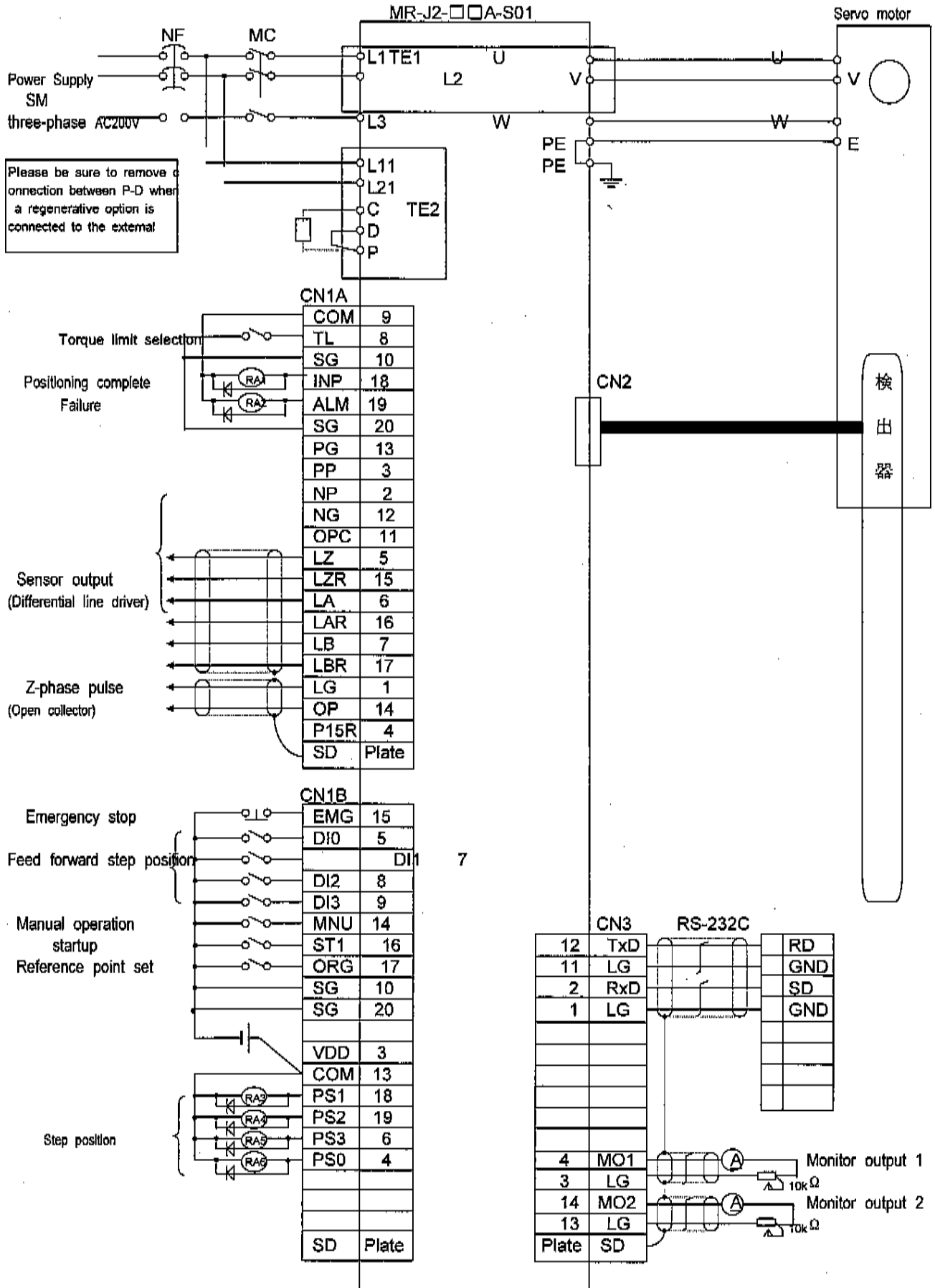
AC Servo amplifier for turret indexing

MR-J2-□□A-S01

Delivery specification

Distribute to		Mitsubishi Electric Nagoya Works					
User	1						
	1	Revision	Service office				
	1	See next page	Created by	Inspected	Date	3/17/99	
	1				SHEET No BNC-B32105 -0088		Sub# *
	原紙						

3. Schematic





Warning

8. Do not misdirection of the diode. The servo amplifier breaks down and the signal is no longer outputted if it is connected wrongly, and Operation of protection circuits, such as an emergency stop, may become invalid.
2. Please be sure to install an external emergency stop switch.

Request

3. When a regenerative option used, be sure to remove the lead wire between D-P.
8. CN1A, CN1B, CN2 and CN3 are the same form. Wrong connection causes the failure.
5. The total current, which flows to an external relay, should be set to 80mA or less. Please supply the power supply for an interface externally when it exceeds 80mA

Note

8. Please be sure to short-circuit an external emergency stop signal (EMG) at the operation. (b-point)
9. The signal of the same name is connected inside the servo amplifier.
10. The failure signal (ALM) is energized at the normal condition (no alarm). Please stop the controller signal by the sequence program when it shuts OFF (when the alarm is generated).
11. Please be sure to connect the shield line to the plate in a connector (ground plate).

4. Explanation of the terminals
CN1A / CN1B

Signal	Abbr.	Connector pin#	Function / Purpose																																													
Digital I/F Power Input	COM	CN1A-9 CN1B-13	The driver power supply input terminal for the digital interface. All COM's are connected inside. Connect 200mA or more here by DC24V when the external power supply is used.																																													
Remort control for Digital I/F	SG	CN1A-10, 20 CN1B-10, 20	It is insulated with 24V common and LG.																																													
Control common	LG	CN1A-1 CN1B-1	Control signal common.																																													
Sensor A-phase pulse	LA	CN1A-6	A-phase/B-phase pulse signal output terminal of the encoder. The output pulse data can be changed by the parameter setting.																																													
	LAR	CN1A-16																																														
Sensor B-phase palse	LB	CN1A-7																																														
	LBR	CN1A-17																																														
Sensor Z-phase palse	LZ	CN1A-5	Z-phase pulse signal output terminal of an encoder																																													
	LZR	CN1A-15	One pulse data is outputted by motor 1 rotation, and the minimum pulse width is 444usec(s).																																													
	OP	CN1A-14																																														
Torque control	TL	CN1A-8	Torque restriction input terminal. The parameter No. 28 becomes the torque restriction value 1 by disconnecting tbtween the TL-SG, and the torque restriction value 2 becomes valid by short-circuiting.																																													
Emergency Stop	EMG	CN1B-15	Emergency stop signal input terminal. If between EMG-SG is disconnected, it will be in an emergency stop state, and the servo will be turned OFF and the dynamic brake will be operated. The emergency stop will be released automatically when between the EMG-SG is disconnected from the emergency stop state.																																													
Feed forward step position	DI0	CN1B-5	Feed forward step position input terminal. Set the turret index position. A setting value when a starting signal is inputted becomes effective.																																													
	DI1	CN1B-7																																														
	DI2	CN1B-8																																														
	DI3	CN1B-9																																														
			<table border="1"> <thead> <tr> <th>DI3</th> <th>DI2</th> <th>DI1</th> <th>DI0</th> <th>Feed step position</th> </tr> </thead> <tbody> <tr> <td>Disconnect</td> <td>Disconnect</td> <td>Disconnect</td> <td>Disconnect</td> <td>Step No.0</td> </tr> <tr> <td>Disconnect</td> <td>Disconnect</td> <td>Disconnect</td> <td>Disconnect</td> <td>Step No.1</td> </tr> <tr> <td>Disconnect</td> <td>Disconnect</td> <td>Connect</td> <td>Disconnect</td> <td>Step No.2</td> </tr> <tr> <td>Disconnect</td> <td>Disconnect</td> <td>Connect</td> <td>Connect</td> <td>Step No.3</td> </tr> <tr> <td>Disconnect</td> <td>Connect</td> <td>Disconnect</td> <td>Disconnect</td> <td>Step No.4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Connect</td> <td>Connect</td> <td>Disconnect</td> <td>Connect</td> <td>Step No.13</td> </tr> <tr> <td>Connect</td> <td>Connect</td> <td>Connect</td> <td>Disconnect</td> <td>Step No.14</td> </tr> </tbody> </table>	DI3	DI2	DI1	DI0	Feed step position	Disconnect	Disconnect	Disconnect	Disconnect	Step No.0	Disconnect	Disconnect	Disconnect	Disconnect	Step No.1	Disconnect	Disconnect	Connect	Disconnect	Step No.2	Disconnect	Disconnect	Connect	Connect	Step No.3	Disconnect	Connect	Disconnect	Disconnect	Step No.4						Connect	Connect	Disconnect	Connect	Step No.13	Connect	Connect	Connect	Disconnect	Step No.14
DI3	DI2	DI1	DI0	Feed step position																																												
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Connect	Connect	Disconnect	Connect	Step No.13																																												
Connect	Connect	Connect	Disconnect	Step No.14																																												
Starting	ST1	CN1B-16	Initial input terminal. The motor rotates the short-cut direction when between the ST1-SG is connected, and it positions in the position specified in the feed forward step position.																																													
Starting point set	ORG	CN1B-17	Starting point set input terminal. It executes the Starting point setting when between the ORG-SG is connected.																																													
Manual operation	MNU	CN1B-14	Manual operation input terminal. The motor rotates to the correct direstion when between the MNU-SG is connected. It can be stoped slowly when it is disconnected, and it positions in the closeststep position.																																													
Positioning complete	INP	CN1A-18	Positioning complete signal output. Between the INP-SG closes when the stored pulse data becomes smaller than the lmposition range which has been set by the parameter.																																													
Failure	ALM	CN1A-19	Failure signal output terminal. Between the ALM-SG opens at the power OFF, when protection circuit operates at the base interception and when the warning message occurred. It normally closed when the power is ON.																																													

CN1A / CN1B

Signal	Abbr.	Connector Pin #	Function / Purpose					
Step position	PS0	CN1B-4	Step position output terminal. It outputs like the positioning completion signal output.					
	PS1	CN1B-18						
	PS2	CN1B-19						
	PS3	CN1B-6		PS3	PS2	PS1	PS0	Step position
				Disconnect	Disconnect	Disconnect	Disconnect	Out of imposition range
				Connect	Connect	Connect	Connect	Step No. 0
				Connect	Connect	Connect	Disconnect	Step No. 1
				Connect	Connect	Disconnect	Connect	Step No. 2
				Connect	Connect	Disconnect	Disconnect	Step No. 3
	Disconnect	Disconnect		Connect	Disconnect	Step No. 13		
Disconnect	Disconnect	Disconnect	Connect	Step No. 14				
Shield	SD	Plate	It connects one side of the shield line.					

CN 3

Signal	Abbr.	Connector pin #	Function / Purpose
Monitor output	MO1	CN3-4	Monitor output signal output terminal
	MO2	CN3-14	The analog output of the data set up with the parameter is executed.
Monitor common	LG	CN3-3, 13	It assumed as a common of the monitor by the control common.
Shield	SD	Plate	It connects one side of the shield line.

Terminal block

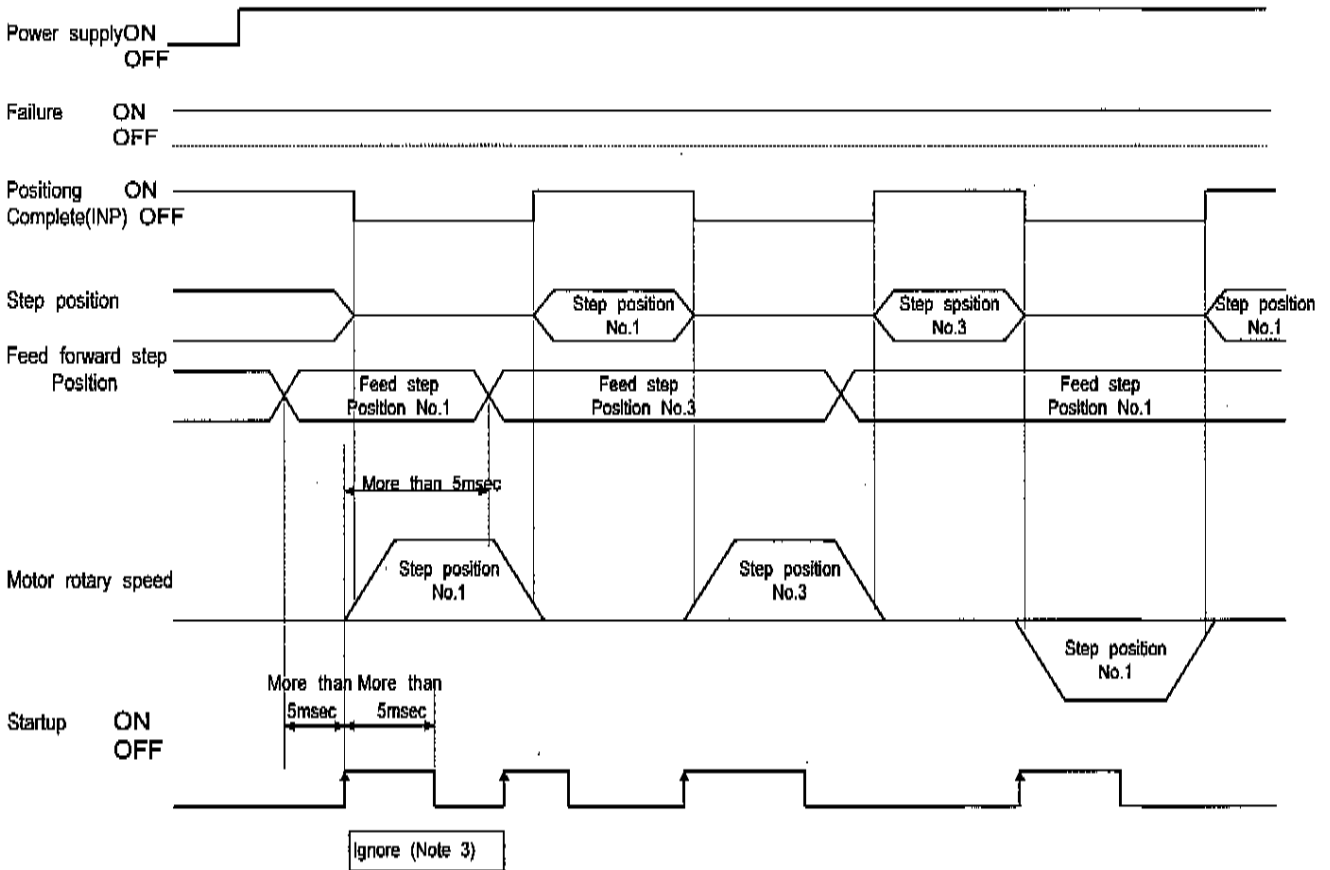
Signal	Abbr.	Terminal block	Function / Purpose
Alternating current	L1/L2/L3	TE1	It connects to the commercial power supply 3-phase 200 to 230V / 50, 60Hz.
	L11/L21	TE2	It connects to the commercial power supply 3-phase 200 to 230V / 50, 60Hz. Please supply from L1, L2, L3, and a common power supply.
Monitor output	U/V/W	TE1	Connect with the motor power terminal U, V and W.
Regenerative brake resistance	P/C/D	TE2	Please remove the electric wire for the connection between P-D, and connect a regenerative option between P-C when the regenerative option is used.
Ground	PE	chassis	One-point grounding with the motor.

5. Sequence

8. Positioning

The amount of movements is calculated from the current position and the feed forward step position, and it positions by short cut in the specified feed forward step position by turning the initial signal (ST1) ON(connect).

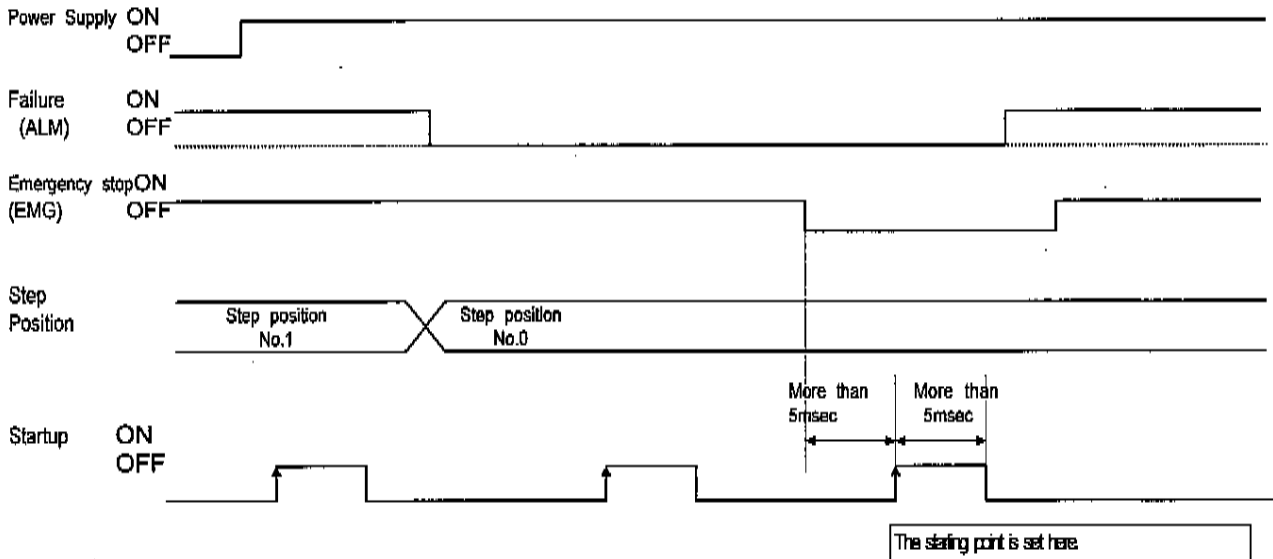
The motor rotation speed is set as the parameter No.08(SP1) positioning speed 1.



- Note)
1. If the positioning operation is performed without reference point setup, reference point return incomplete warning will be occurred; and the starting signal will be ignored.
 2. When the feed forward step position exceeds "parameter No.10 (STN) setting value ?1", the feed forward step position warning occurs, and the starting signal will be disregarded.
 3. The starting signal is not accepted when the command movements remainder amount is not 0. Refer to "(5) Positioning complete/ step position output".
 4. The starting signal at the manual operation signal is turned on is disregarded.
 5. The starting signal when the torque restriction signal is turned on is disregarded.

9. Reference point setting

The reference point can be set by specifying the feed forward step position No. 0 in the reference point position, and turning ON (short-circuit) the reference point set signal



Note) 1. Reference point setting error occurs when the reference point setting signal is turned ON in the condition other than the feed forward step position No. 0 and during the emergency stop (connect), and the reference point setting will be disregarded.

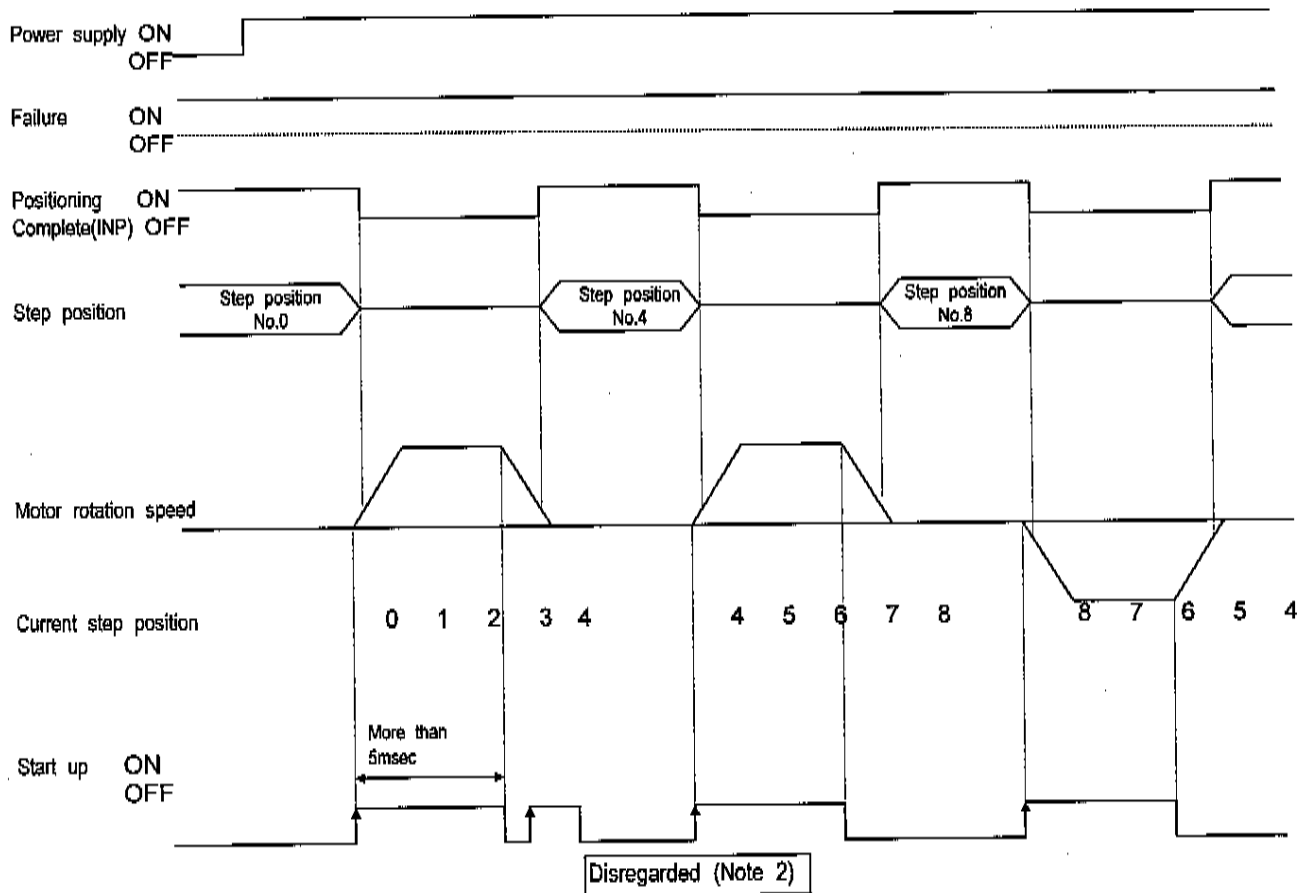
(3) Manual operation

Positioning is possible in the optional step position by turning ON (connect)/ OFF (disconnect) the manual operation signal (MNU).

It starts to rotate in correct direction by turning the manual operation signal ON.

Deceleration stop is possible by turning the manual operation signal ON, and it positioning in the closest step position.

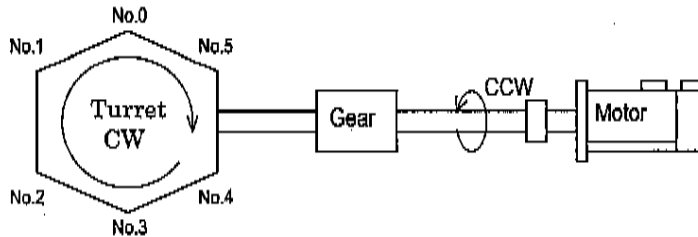
The motor rotation speed is set by the parameter No.09(SP2) positioning speed 2.



- Note) 1. If manual operation is executed without the starting point setup, it will become starting point return incompleted error, and the manual operation signal will be disregarded.
2. Manual operation is not accepted when the remaining amount of the command movement is not 0.
3. The manual operation signal when the starting signal is turned ON is disregarded.
4. The manual operation signal when the torque restriction signal is turned ON is disregarded.

(4) Turret step No.

Turret step No. sets the starting point setting position to No.0, and sets it to No.1 and No.2 in the correct motor rotate direction

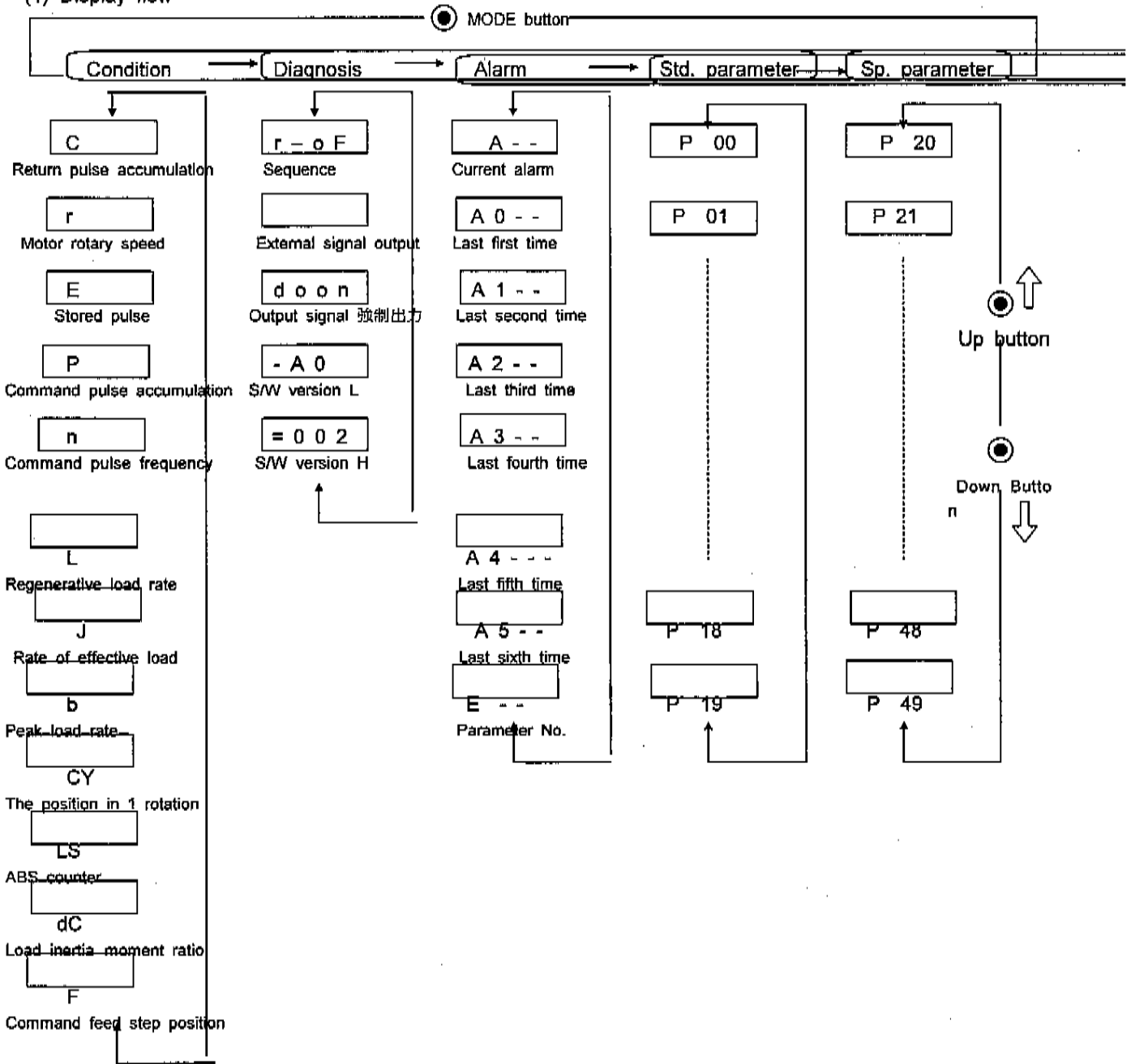


(5) Positioning complete / step position output

8. The applicable step position signal will be output if it is in the position within the limits of each feed forward step position at the power supply is turned ON, the emergency stop, or the alarm generating, and the completion signal of the positioning will be turned ON (short circuit).
9. The applicable step position signal will be output if it is in the position within the limits of the target feed forward step position after the power supply is turned ON or the the servo motor is under the operation with the starting signal after the emergency stop is released.
10. The applicable step position signal will be output if it is in the position within the limits of the target feed forward step position after the power supply is turned ON or the servo motor is under the operation manually after the emergency stop released
11. The applicable step position signal will be output if it is in the position within the limits of each feed forward step position after the power supply is turned ON or when the torque limit is turned ON and the servo motor is moved after emergency step is released.
12. The applicable step position signal will be output if it is in the position within the limits of the target feed forward step position during the servo motor is operating by the staetup signal.

Note) 1. During the servo operation by the startup signal or the manual operation signal, both of the positioning complete signal and the step positioning signal are turned OFF, if the remaining amout of the command movement is not set to 0, even though they are in the inposition ranfe of the target feed step.

6. Display
 (1) Display flow




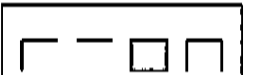
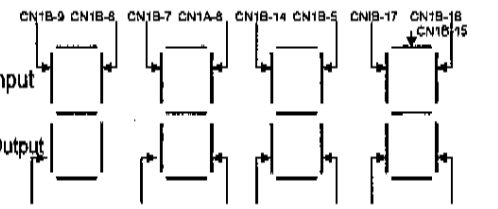
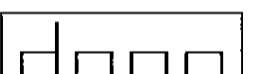


(2) Display of the condition

Name	Symbol	Display range	unit	Content
Return pulse accumulate	C	-9999 ~ 9999	pulse	The return pulse from the servo motor detector is counted and displayed. It begins from 0 if it exceeds ± 9999 . It becomes 0 when the SET button is pressed. The decimal point of the first 3-digit lighted at reverse.
Motor rotation speed	r	-5400 ~ 5400	r/min	The rotation speed of the servo motor is displayed. The decimal point of the first 3-digit lighted at reverse.
Stored pulse	E	-9999 ~ 9999	pulse	The stored pulse of the deviation counter is displayed. It begins from 0 if it exceeds ± 9999 . The decimal point of the first 3-digit lighted at reverse.
Command pulse accumulate	P	-9999 ~ 9999	pulse	The position command input pulse is counted and displayed. It becomes 0 when the SET button is pressed. It begins from 0 if it exceeds ± 9999 . The decimal point of the first 3-digit lighted at reverse.
Command pulse frequency	n	-400 ~ 400	kpps	The command pulse frequency is displayed. The decimal point of the first 3-digit lighted at reverse.
Regenerative load factor	L	0 ~ 100	%	The ratio of regenerative power to the allowable regenerative power is displayed by %.
Effective load factor	J	0 ~ 300	%	Continuance effective load torque is displayed. It is 100% at the rated torque generation. The effective value for the past 15 seconds is displayed.
Peek load factor	b	0 ~ 300	%	The maximum generating torque is displayed. It is 100% at the rated torque generation. The effective value for the past 15 seconds is displayed.
The position in one rotation	CY	0 ~ 9999	pulse	The position in one rotation is displayed by the pulse unit of the detector. It begins from 0 if it exceeds ± 9999 .
ABS counter	LS	-9999 ~ 9999	rev	The movement amount from the reference point is displayed by the absolute position detect system. It begins from 0 if it exceeds ± 9999 .
Load inertia moment ratio	dc	0.0 ~ 100.0	X (times)	The presumed value of the load inertia moment ratio to the inertia moment of the servo motor is displayed.
Command feed forward Step position	F	0~14		The command feed forward step position is displayed. The step position stopped by manual operation signal OFF is displayed at the manual operation.

After selecting the display of each state, it will be displayed with the symbols. The contents of the conditions are displayed when the set button is pressed.

While displaying the numerical value negative by each state display, the decimal point of second, third and fourth digit lights up. However, the decimal position is not lighted if it has the decimal display.

(3) Diagnostic display

Name specified	Display	Contents
Sequence		Preparation uncompleted. At the condition under the initialization or alarm generating.
		Preparation completed. When the servo is turned ON, and it can be operated after the Initialization is completed.
External I/O signal display		The ON-OFF state of the external I/O signal is displayed.
Output signal illegal output		The digital output signal can be turn ON/OFF forcibly.
Software version Low		It displays the software version.
Software version High		The system number of the software is displayed.

The decimal point of the 1st digit is lighted during the DO signal check.

(4) Alarm display

Name specified	Display	Contents
Current alarm	AL --	Alarm is not generated.
	AL 33	Alarm 33 (over voltage) was generated. The light turns ON when the alarm is generated.
Alarm history	A050	Alarm 50 (over load 1) was generated one before.
	A133	Alarm 33 (over voltage) was generated two before.
	A210	Alarm 10 (insufficient voltage) was generated three before.
	A331	Alarm 31 (acceleration) was generated four before.
	A4--	Alarm has not occurred five before.
	A5--	Alarm has not occurred six before.
Parameter number	E --	Alarm 37 (parameter error) has not occurred.
	E 01	An error in the parameter No.01.

When alarm is generated...

- (1) The current display is switched to the alarm screen.
- (2) The other screens can be seen while the alarm is generating, but the decimal point of the highest digit (the 4th figure) blinks. Set
- (3) To clear the alarm, turn the power OFF to ON, or press the button on the current alarm screen.
- (4) Alarm history clear can be executed by the parameter No.16.

(5) Parameter setup

8. 4-digit parameter setup

P 00

It displays when the parameter setup is selected.
Select the parameter number by using the up/down button.

0 0 0 0

The parameter contents are displayed when the set button is pressed.
It becomes the screen which to select the next parameter number when the up/down button is pressed.

0 0 0 0

The content of the parameter flashes when the set button is pressed, and changes can be made.
Change the value by using the up/down button, and determine the contents by using the set button.
The parameter content is displayed as it is after it was determined.

8. 5-digit parameter setup

P 03

It is displayed when the parameter setup is selected.
The parameter number is selected by using the up/down button.

2 3 4 5
1

The last 4 digit content of the parameter is displayed when the set button pressed.
The las 5 digit content of the psrsmeter is displayed when the mode button is pressed.
It becomes the screen which to select the next parameter number when the up/down button is pressed.

2 3 4 5
1

The content of the parameter flashes when the set button is pressed, and changes can be made.
The las 5 digit content of the psrsmeter is displayed when the mode button is pressed.
Change the value by using the up/down button, and determine the contents by using the set button.
The parameter content is displayed as it is after it was determined.
It becomes the parameter display when the mode button is pressed for 2 seconds.

7. Parameter

(1) Parameter list

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Remark
Standard Parameter	0	*STY	Control mode / Regenerative select	0000		
	1	*FTY	Feed forward method	0000		
	2	*OP1	Function select 1	1003		
	3	ATU	Auto tuning	1102		
	4	*CMX	Number of the machine side gear teeth	9		
	5	*CDV	Number of the motor side gear teeth	1		
	6	PG1	Position control gain 1	29	rad/s	
	7	PST	Constant number at acceleration/ deceleration	100	msec	
	8	SP1	Positioning speed 1	1500	r/min	
	9	SP2	Positioning speed 2	300	r/min	
	10	*STN	Number of rate for one rotation	12	/ (partition)	
	11	INP	Inposition range	100	pulse	
	12		Reserved	0		
	13			0		
	14			0		
	15			0		
	16	*BPS	Communication baud rate select/ alarm history clear	0000		
	17	MOD	Analog monitor	0100		
	18	*DMD	Condition display select	0000		
19	*BLK	Parameter block	0000			
Extension Parameter	20	*OP2	Function select 2	0000		
	21	*OP3	Function select 3	0000		
	22	*OP4	Function select 4	0000		
	23	FFC	Feed forward forward gain	0	%	
	24			0		
	25			0		
	26			0		
	27	*ENR	Detector output pulse	4000	pulse	
	28	TL1	Internal torque limit value 1	100	%	
	29	TL2	Internal torque limit value 2	10	%	
	30		Reserved	0		
	31	MO1	Analog monitor offset 1	0	mv	
	32	MO2	Analog monitor offset 2	0	mv	
	33		Reserved	0		
	34	DG2	Load inertia moment ratio to the servo motor	110	×0.1	
	35	PG2	Position control gain 2	25	rad/s	
	36	VG1	Speed control gain 1	177	rad/s	
	37	VG2	Speed control gain 2	870	rad/s	
	38	VIC	Speed integration compensation	40	msec	
	39	VDC	Speed differentiation compensation	980		
	40		Reserved	0		
	41	LPF	Current command low pass filter	0000		
	42	NCH	Machine resonance control filter	0016		
	43	FR1	Friction compensation gain 1	0		
	44	FR2	Friction compensation gain 2	0		
	45	FRD	Friction compensation gain model speed	0		
	46		Reserved	0		
	47			0		
	48			0		
49			0			

Note) Turn the power OFF once for the parameter w/ *.
The setup completes when the power is turned ON again.

(2) Parameter details

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Setting range
Standard Parameter	00	*STY	Regenerative option select Select the regenerative option 0 0 0 <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Regenerative option select 0 : Not used 2 : MR-RB032 3 : MR-RB12 4 : MR-RB32 5 : MR-RB30 6 : MR-RB50 </div> Note) Select regenerative option for the amplifier. It becomes the parameter error if it is set wrongly.	0000		0000h ~ 0600h
	01	*FTY	Feed forward method Select the feed forward method. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px;"> 0 0 0 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Direction of the manual starting point return rotation 0 : CCW 1 : CW </div>	0000		0000h ~ 0001h
	02	*OP1	Function select 1 Select the servo option type. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px;"> 0 0 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> D-I Input filter 0 : - 1 : 1.77msec 2 : 3.55msec 3 : 5.33msec 4 : 7.11msec 5 : 8.88msec 6 : 10.66msec 7 : 12.44msec </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Absolute position detect system 0 : Use incremental 1 : Use the absolute position detect system </div>	1003		0000h ~ 1007h

Note) Turn the power OFF once for the parameter w/ *.
 The setup completes when the power is turned ON again.

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Setting Range																								
Standard Parameter	03	ATU	Auto tuning Setup the response etc. when executing the auto-tuning. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th colspan="2">Tuning response setup (auto-tuning effective)</th> </tr> <tr> <th>Setting range</th> <th>Response</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Low response</td> </tr> <tr> <td>2</td> <td>---</td> </tr> <tr> <td>3</td> <td>Med. response</td> </tr> <tr> <td>4</td> <td>---</td> </tr> <tr> <td>5</td> <td>High response</td> </tr> </tbody> </table> <table border="1" style="margin: 10px auto;"> <tr> <td>Machine select</td> </tr> <tr> <td>0: Normal</td> </tr> <tr> <td>1: Large friction</td> </tr> </table> <table border="1" style="margin: 10px auto;"> <tr> <td>Auto tuning select</td> </tr> <tr> <td>0: Interpolation control (Not setup normally)</td> </tr> <tr> <td>1: Execute position/speed loop</td> </tr> <tr> <td>2: Not executed</td> </tr> </table> <table border="1" style="margin: 10px auto;"> <tr> <td>Setting time reduce</td> </tr> <tr> <td>0: Normal</td> </tr> <tr> <td>1: Reduced</td> </tr> </table>	Tuning response setup (auto-tuning effective)		Setting range	Response	1	Low response	2	---	3	Med. response	4	---	5	High response	Machine select	0: Normal	1: Large friction	Auto tuning select	0: Interpolation control (Not setup normally)	1: Execute position/speed loop	2: Not executed	Setting time reduce	0: Normal	1: Reduced	1102		0001h ~ 1215h
	Tuning response setup (auto-tuning effective)																													
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2: Not executed																														
Setting time reduce																														
0: Normal																														
1: Reduced																														
04	*CMX	Number of the machine side gear teeth : It setup the number of machine side gear teeth.	9		1~16384																									
05	*CDV	Number of the motor side gear teeth : It setup the number of motor side gear teeth. CMX and CDV are made into following setting range. (1) $\frac{1}{9999} < \frac{CMX}{CDV} < 9999$ (2) $CDV \times STN < 32767$ (3) $CMX \times CDV < 100000$	1		1~16384																									
06	PG1	Position control gain 1 It setup the gain of the position loop 1. If a gain is enlarged, the tracking response to position command is improved.	28	rad/s	4~1000																									
07	PST	Constant for acceleration/ deceleration It setup the time until it reaches rated rotation speed to position command.	100	msec	0 ~10000																									
08	SP1	Positioning speed 1 It setup the positioning speed 1.	1500	r/min	0~ Allowable rotation speed																									
09	SP2	Positioning speed 2 It setup the positioning speed 2.	300	r/min	0~ Allowable rotation speed																									

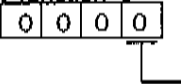
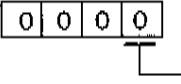
Note) Turn the power OFF once for the parameter w/ *.
The setup completes when the power is turned ON again.

Class	No.	Abbr.	Name specified / Functions	Initial value	unit	Setting range				
Standard Parameter	10	*STN	Number of rates for one rotation It setup number of the rates for one machine rotation.	12	rates	1~15				
	11	INP	Imposition range It setup the stored pulse range which output the positioning complete signal (INP).	100	pulse	0~10000				
	12		Reserved	0						
	13									
	14									
	15									
	16	*BPS	Communication report and alarm history clear It select the RS-232C communication portrait and select and clear the alarm history. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px 0;"> <table border="1" style="border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">0</td> <td style="width: 20px; text-align: center;">0</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px 0;"> RS-232C portrait select 0 : 9600[bps] 1 : 19200[bps] </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px 0;"> Alarm history clear 0: Ineffective 1: Effective The alarm history is cleared when the power is turned ON again if the alarm history clear is effective. It becomes ineffective automatically after the alarm is cleared. </div>	0	0			0000		0000h ~ 0011h
0	0									
	17	MOD	Analog monitor output It setup the signal output to the analog monitor. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px 0;"> <table border="1" style="border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">0</td> <td style="width: 20px; text-align: center;">0</td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px 0;"> Analog monitor ch1 output select The setting value and the contents are same as the analog monitor ch2. </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px 0;"> Analog monitor ch2 output select 0: Motor rotary speed ($\pm 8V$/ maximum rotary speed) 1: Torque ($\pm 8V$/ maximum torque) 2: Motor rotary speed (+8V/ maximum rotary speed) 3: Torque (+8V/ maximum torque) 4: Current command ($\pm 8V$/ maximum current command) 5: Speed command ($\pm 8V$/ maximum rotary speed) 6: Stored pulse ($\pm 10V$/ 128 pulse) 7: Stored pulse ($\pm 10V$/ 2048 pulse) 8: Stored pulse ($\pm 10V$/ 819 pulse) 9: Stored pulse ($\pm 10V$/ 32768 pulse) A: Stored pulse ($\pm 10V$/ 131072 pulse) </div>	0	0			0100		0000h ~ 0A0Ah
0	0									

Note) Turn the power OFF once for the parameter w/ *.
The setup completes when the power is turned ON again.

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Setting range																					
Standard Parameter	18	*DMD	Condition display select/ alarm history clear Select the condition display, which displays when the power is turned ON, and the alarm history clear. 0 0 0	0000		0000h ~ 000Bh																					
	19	*BLK	Parameter block Select the reference range of the parameter, and the write range. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Set value</th> <th>Reference parameter range</th> <th>Rewritable parameter area</th> </tr> </thead> <tbody> <tr> <td>0000</td> <td>Standard parameter (0~19)</td> <td>Standard parameter (0~19)</td> </tr> <tr> <td>000A</td> <td>Parameter No.19 only</td> <td>Parameter No.19 only</td> </tr> <tr> <td>000B</td> <td>Standard parameter (0~19) + Extend parameter (20~49)</td> <td>Standard parameter (0~19)</td> </tr> <tr> <td>000C</td> <td>Standard parameter (0~19) + Extend parameter (20~49)</td> <td>Standard parameter (0~19) + Extend parameter (20~49)</td> </tr> <tr> <td>000E</td> <td>Standard parameter (0~19) + Extend parameter (20~66)</td> <td>Standard parameter (0~19) + Extend parameter (20~66)</td> </tr> </tbody> </table> Other than above <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Reference parameter range</th> <th>Write in parameter range</th> </tr> </thead> <tbody> <tr> <td>Standard parameter (0~19)</td> <td>Standard parameter (0~19)</td> </tr> </tbody> </table>	Set value	Reference parameter range	Rewritable parameter area	0000	Standard parameter (0~19)	Standard parameter (0~19)	000A	Parameter No.19 only	Parameter No.19 only	000B	Standard parameter (0~19) + Extend parameter (20~49)	Standard parameter (0~19)	000C	Standard parameter (0~19) + Extend parameter (20~49)	Standard parameter (0~19) + Extend parameter (20~49)	000E	Standard parameter (0~19) + Extend parameter (20~66)	Standard parameter (0~19) + Extend parameter (20~66)	Reference parameter range	Write in parameter range	Standard parameter (0~19)	Standard parameter (0~19)	0000	
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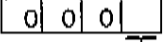
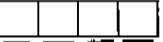
Note) Turn the power OFF once for the parameter w/ *.
The setup completes when the power is turned ON again.

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Setting range
Extension Parameter	20	*OP2	Select function 2 It selects the micro-vibration control. 0 0	0000		0000h ~ 1100h
	21	*OP3	Select function 3 	0000		0000h ~ 0000h
	22	*OP4	Select function 4 	0000		0000h ~ 0000h
	23	FFC	Feed forward gain It setup the feed forward gain at the position control. The stored pulse will not be generated, if 100% is setup and it is operating at the fixed speed. However, the overshoot will become large if acceleration /deceleration is executed. Set the auto tuning to "Not executed" (parameter No.03) when setting up this parameter.	0	%	0~100
	24 25 26		Reserved	0		
	27	*ENR	Detector output pulse The number of output pulses per rotation of the detector which servo amplifier outputs is set up.	4000	pulse	5~16384
	28	TL1	Internal torque limit 1 It sets up limit the torque occurrence of the servo motor for the maximum torque = 100%. The torque is not occurred if it is set to 0.	100	%	0~100
	29	TL2	Internal torque limit 2 It sets up limit the torque occurrence of the servo motor for the maximum torque = 100%. The torque is not occurred if it is set to 0.	10	%	0~100
	30		Reserved	0		

Note) Turn the power OFF once for the parameter w/ *.
The setup completes when the power is turned ON again.

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Setting range
Extend Parameter	31	MO1	Analog monitor ch1 offset It setup the offset voltage of the analog monitor ch1 output.	0	mV	-999~999
	32	MO2	Analog monitor ch2 offset It setup the offset voltage of the analog monitor ch2 output (MO2).	0	mV	-999~999
	33		Reserved			
	34	DG2	The load inertia moment ratio to the motor It becomes auto tuning result automatically during the auto tuning setting.	110	×0.1倍	0~1000
	35	PG2	Positioning control gain 2 The position loop gain is setup. It sets up when raising the position response to the load disturbance. It responds if it is raised, but it causes the vibration and noises. It becomes auto tuning result automatically during the auto tuning setting.	25	rad/s	1~500
	36	VG1	Speed control gain 1 This parameter normally unnecessary to change. It responds if it is raised, but it causes the vibration and noises. It becomes auto tuning result automatically during the auto tuning setting.	177	rad/s	20~5000
	37	VG2	Speed loop gain 2 It sets up when vibration occurs in the machine of low rigidity, and the large machine of a backlash, etc. It responds if it is raised, but it causes the vibration and noises. It becomes auto tuning result automatically during the auto tuning setting.	870	rad/s	20~8000
	38	VIC	Speed integral compensation It sets up the constant at the integration of the speed loop. It becomes auto tuning result automatically during the auto tuning setting.	40	msec	1~1000
	39	VDC	Speed differentiation compensation It sets up the differentiation compensation value of the speed loop. If the comparative integration is reduced at 1000, the range of the comparative control is expanded.	980		0~1000
	40		Reserved	0		

Note) Turn the power OFF once for the parameter w/ *.
The setup completes when the power is turned ON again.

Class	No.	Abbr.	Name specified / Functions	Initial value	Unit	Setting range																																														
Extend Parameter	41	LPF	Current command low path filter  The low path filter to the current Command.	0000		0000h ~ 0003h																																														
	42	NCH	Machine resonance control filter  The frequency suitable for the resonance frequency of the machine system is setup. <table border="1" data-bbox="641 700 1156 969"> <thead> <tr> <th>Set value</th> <th>Resonance [Hz]</th> <th>Set value</th> <th>Resonance [Hz]</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Not used</td> <td>8</td> <td>281.2</td> </tr> <tr> <td>1</td> <td>2250</td> <td>9</td> <td>250</td> </tr> <tr> <td>2</td> <td>1125</td> <td>A</td> <td>225</td> </tr> <tr> <td>3</td> <td>750</td> <td>B</td> <td>204.5</td> </tr> <tr> <td>4</td> <td>562.5</td> <td>C</td> <td>187.5</td> </tr> <tr> <td>5</td> <td>450</td> <td>D</td> <td>178.1</td> </tr> <tr> <td>6</td> <td>375</td> <td>E</td> <td>160.7</td> </tr> <tr> <td>7</td> <td>321</td> <td>F</td> <td>150</td> </tr> </tbody> </table> The weight of the machine resonance control filter is setup. <table border="1" data-bbox="641 1025 954 1205"> <thead> <tr> <th>Set value</th> <th>At this time [%]</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>50</td> </tr> <tr> <td>1</td> <td>75</td> </tr> <tr> <td>2</td> <td>87.5</td> </tr> <tr> <td>3</td> <td>93.8</td> </tr> </tbody> </table>	Set value	Resonance [Hz]	Set value	Resonance [Hz]	0	Not used	8	281.2	1	2250	9	250	2	1125	A	225	3	750	B	204.5	4	562.5	C	187.5	5	450	D	178.1	6	375	E	160.7	7	321	F	150	Set value	At this time [%]	0	50	1	75	2	87.5	3	93.8	0016		0000h ~ 3F3Fh
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43	FR1	Friction compensation gain 1 : The friction compensation gain 1 is setup.	0		0~32767																																															
44	FR2	Friction compensation gain 2 : The friction compensation gain 2 is setup.	0		0~32767																																															
45	FRD	Friction compensation gain model speed : The model speed level which starts the friction Compensation.	0		0~32767																																															
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Note) Turn the power OFF once for the parameter w/ *.
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8. Alarm / warning

(1) Alarm / warning list

Display	
A.10	Insufficient voltage
A.11	PCB error 1
A.12	Memory error 1
A.13	Clock error
A.15	Memory error 2
A.16	Detector error 1
A.17	PCB error 2
A.18	PCB error 3
A.20	Detector error 2
A.24	Main circuit error
A.25	Absolute position lost
A.30	Regenerative error
A.31	Acceleration
A.32	Over current
A.33	Over voltage
A.37	Parameter error
A.46	Motor overheat
A.50	Overload 1
A.51	Overload 2
A.52	Excessive error
A.8E	RS-232C communication error
8888	Watch-dog
A.90	Reference point return incomplete warning
A.92	Battery disconnection warning
A.96	Reference point set warning
A.97	Feed forward step position warning
A.9F	Battery warning
A.E3	Absolute position counter warning
A.E6	Servo emergency stop
A.E9	Main circuit off warning

(2) Alarm / warning details

The alarm and warning shown below indicates the addition and changed in the MR-J2-□□A-S01.

The alarm and warnings other than below are the same as the standard unit, therefore, please refer to the MELSERVO-J2-A specification manual.

Display	Content	Cause	Support	
A.90	Reference point return incomplete warning	Automatic operation and manual operation was executed at the reference point return imcompleting.	1. Automatic operation was started at the reference point return imcompleting. 2. Manual operation was started at the reference point return imcompleting.	Execute the reference point return.
A.96	Reference point set warning	The reference point return has not been executed.	1. It could not slow down at creep speed from the reference point return speed.	Reference point return is executed by slowing down the reference point return speed.
A.97	Feed step position warning	Automatic operation was executed with the feed forward position error.	1. The step position value exceeded "the parameter No.10 (STN) setting value -1", and the automatic operation was started.	Set the feed step position as it does not exceeds "the parameter No.10 (STN) setting value -1"